Instructions for Supplemental Permit Application Form
SURFACE COATING OR PRINTING OPERATIONS

(Instructions for completing DEP-AIR-APP-205)

All applicants for a permit for a stationary source, as defined in Section 22a-174-1 of the Regulations of Connecticut State Agencies (RCSA), must complete the appropriate supplemental application forms to provide information to quantify the emissions from each source or point of emissions which makes up that stationary source. When applying for a permit for a manufacturing or process *line* which has a series of emission points, *each of these manufacturing or process lines is considered a unit while the series of emission points which make up that manufacturing or process line are considered subunits.*

This supplemental application form must be completed for new or modified sources such as: spray painting operations; dip coating operations; knife or roll coating; or, rotogravure, flexographic, lithographic, or screen printing.

Note: If surface coating, as described above, is the subject of this application, the operation may be eligible to be authorized by the "General Permit to Construct and/or Operate a New or Existing Surface Coating Operation" (DEP-AIR-GP-302) in lieu of being authorized by an individual permit. It is recommended that you review this general permit before completing this form. To receive a copy of this general permit or to answer any questions that you may have call the Bureau of Air Management at (860) 424-4152.

Please complete a separate form for each type of part to be coated or each printing operation. (You may reproduce this form as necessary.) Complete each item as appropriate. If a particular item does not apply to your situation mark it N/A (not applicable). If additional space is needed to answer a question stated in the application, attach separate sheet(s) as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number.

Attach a process flow diagram indicating all applicator identifications, air pollution control equipment and stacks, as applicable. See a sample process flow diagram in the main instructions (DEP-AIR-INST-200) for guidance. For each coating, ink, thinner, catalyst, cleanup solvent, or other compound to be used in this operation you must attach a Material Safety Data Sheet (MSDS). (These are available from the product's supplier or are shipped with the product when it is purchased.) Also, attach documentation to support the transfer efficiency of any spray applicator, if applicable.

You must also complete the *Air Pollution Control Equipment* form (DEP-AIR-APP-210) to provide details of the air pollution control equipment used, the *Stack Parameters* form (DEP-AIR-APP-211) to provide parameters of the stack(s) associated with each unit, *and* the *Unit Emissions* form (DEP-AIR-APP-212) to provide emission rates of each applicator, e.g., spray gun or coating line.

Note: The data provided in these forms (such as maximum anticipated coating usage, maximum operating hours, etc.) will be used to define the operating limits in your permit.

Please complete a separate form for each type of part to be coated or each type of printing operation. You may reproduce the form as necessary.

Unit Number: Identify the reference or unit number assigned to the type of part to be coated or the type of printing operation. Use the same numbering system that was used in completing Part I: Application and Source Type of the form

Permit Application for New Source Review Stationary Sources of Air Pollution (DEP-AIR-APP-200). Please use a consistent reference number for each type of part to be coated or the type of printing operation throughout the application package.

Indicate (AYes@ or ANo@) whether the unit is subject to Title 40 of the Code of Federal Regulations (CFR) Part 60, New Source Performance Standards (NSPS) or Title 40 CFR Part 63, Maximum Achievable Control Technology (MACT). If the answer is yes to either Part 60 or Part 63, please specify the appropriate subparts.

Section I: General

1. *Type of Parts Coated or Printing Operation* - Indicate the type of part to be coated or the type of printing operation. If other, specify type.

2a. *Oven or Air Dried?*- Indicate whether the coating is cured in an oven or by air drying.

2b. *Power Source* - If the coating is cured in an oven, indicate the appropriate power source of the oven. If other, specify type.

2c. *Type of Fuel* - If fuel is used to fire the oven, specify the type of fuel to be burned (e.g., natural gas).

2d. *Higher Heating Value* - Indicate the fuel's higher heating value in BTU per unit of fuel. Specify the measurement units (e.g., BTU/gallon). These can be obtained from your fuel dealer.

2e-g. *% Sulfur/Nitrogen/Ash* - List the fuel's sulfur, nitrogen, and ash contents in weight % on a dry basis. These can be obtained from your fuel dealer.

2h. *Burner Rated Capacity* - Indicate the maximum design fuel firing rate in BTU per hour of the oven's burner on an hourly basis. If unknown, this information can be obtained from the manufacturer.

2i. *Annual Fuel Usage* - Estimate the maximum anticipated annual fuel usage and specify the measurement units (e.g., gallons per year).

Section II: Applicator Data, All Coating Operations

Note: Complete one Section II for each surface coating applicator (e.g., spray gun, dip tank, flow coater, press, etc.). You may reproduce this form as necessary.

1a. *Applicator ID Number* - Assign a reference number to each applicator. Base this reference number on the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). For example, if the number assigned to a type of part to be coated or a type of printing operation is U1, the reference numbers assigned to the applicators used would be U1a, U1b, etc.

1b. *Unit Number* - Identify the reference or unit number assigned to the type of part to be coated or the type of printing operation which uses the applicator. Use the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). Please use a consistent reference number for each type of part to be coated or the type of printing operation throughout the application package.

1c. *Construction Date* - Indicate the anticipated or actual construction date. Please refer to the definition of ABegin actual construction@ in RCSA Section 22a-174-1 in order to properly complete this item.

2. *Mode of Surface Coating* - Indicate all appropriate modes of coating that apply. If other, specify type. A hand-held spray gun is an example of manual coating. Offset lithographic web printing is an example of

continuous coating. A robotic spray system is an example of automatic coating. A dip coating operation is an example of batch coating.

3. *Type of Applicator* - Indicate the type of applicator used. If you are using a spray or roll coating method, be sure to also indicate the specific subtype. If other, specify type (e.g., HVLP gun, etc.). This information can be obtained from the manufacturer.

3a. *Transfer Efficiency* - If using a spray applicator, indicate an estimated transfer efficiency of the applicator. Transfer efficiency is the ratio of amount of solids sprayed from the applicator that adheres to the part being coated. *Provide documentation to support this.* This information can be obtained from the manufacturer.

3b. *Tank Dimensions* - If using a dip tank, indicate the tank dimensions in feet *and* its capacity in gallons.

3c. *Cover?* - If using a dip tank, indicate ("Yes" or "No") whether the dip tank is equipped with a cover.

4a. *Type of Cleanup Solvents Used* - Indicate the type of each clean-up solvent used. If additional space is needed to answer this item, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number. *Attach a Material Safety Data Sheet for each clean-up solvent.* These forms are available from the supplier or are shipped with the chemical when it is purchased.

4b. *Maximum Usage* - Estimate the maximum anticipated amount of each clean-up solvent used, in gallons per hour, gallons per day, and gallons per year.

4c. *Cleanup Method* - Indicate the method for cleaning the applicator (e.g., enclosed gun washer, automatic blanket cleaner, beaker, etc.)

5. *Type, Use and Amount of Other Solvents* - If other types of solvents are used, specify what they are used for (e.g., fountain solution, etc.). Estimate the maximum anticipated amount of each solvent used, in gallons per hour, gallons per day, and gallons per year. If additional space is needed to answer this item, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number. *Attach a Material Safety Data Sheet for each solvent.* These forms are available from the supplier or are shipped with the chemical when it is purchased.

6a. *Temperature of Coating or Ink Material as Applied* - Indicate the temperature in ^{o}F of the environment in which the coating or ink is applied.

6b. *Is coating heat cured or dried?* - Indicate whether the coating is heat cured or dried. If so, specify what method is used and the cure/dry temperature in ^{o}F.

Operating Details for Mixed Coating or Ink Application

7a. *Applicator Rated Capacity* - Indicate the applicator's design maximum rated capacity in gallons per hour of coating or ink as applied, i.e., with thinner. This can be obtained from the manufacturer.

7b. *Maximum Operating Hours Per Day* - Estimate your maximum operating schedule in hours per day.

7c,d,e. *Maximum Coating or Ink Usage* - Estimate the maximum anticipated total coating or ink usage in gallons per hour, gallons per day, and gallons per year.

Spray Booths Only

8. Check the appropriate particulate emissions control used in the spray booth. If other, specify type.

Note: If the type of parts coated or the printing operation indicated in Section I, item 1 was Flatwood Paneling, Offset Lithographic Printing, or "Other", complete Section III and omit Section IV. (Examples of other types of parts coated are wood cabinets or printed circuit board coating.)

For all other coating or printing operations indicated in Section I, item 1, omit Section III and complete Section IV.

Section III: Non-Specific Coating Operations

Note: Complete this section for all coating(s) to be used in a parts coating or a printing operation. If additional space is needed to complete this section, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number. You may reproduce this form as necessary. *Attach a Material Safety Data Sheet for each coating, thinner, or catalyst.* These forms are available from the supplier or are shipped with the chemical when it is purchased.

Unit Number - Identify the reference or unit number assigned to the type of part to be coated or the type of printing operation which will use the coating(s). Use the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). Please use a consistent reference number for each type of part to be coated or the type of printing operation throughout the application package.

1a. *Applicator ID* - Specify the applicator identification number(s). Use the same numbering system that was used in completing Section II, item 1a.

1b. *Coating Name and ID* - Assign an identifying number to each coating (e.g., coating 2, etc.). This number may be an inventory number you are currently using, or a number created for these application materials. Please use a consistent identifying number for each coating throughout the application package. Also indicate the name of each coating.

Information for items 1 c-f can be obtained from the coating's Material Safety Data Sheet or the coating supplier, and using the volumetric mix ratio of thinner or catalyst to coating.

1c. *Solids Content* - Indicate each coating's solids content in weight percent, as applied, i.e., as mixed or thinned, if applicable.

1d. *Water Content* - Indicate each coating's water content, if any, in weight percent, as applied.

1e. *Exempt VOC Content* - Indicate each coating's exempt VOC content, if any, in weight percent, as applied. Exempt VOC's are listed in RCSA Section 22a-174-1(97). Examples are methane, 1,1,1-trichloroethane, methylene chloride, CFC-11, etc.

1f. *VOC Content* - Indicate each coating's VOC content, if any, in weight percent, as applied. Do *not* include exempt VOC's or water in this figure.

Note: The sum of items 1c-f should be 100% by weight.

1g. *Solvent Content* - Indicate each coating's solvent percent by weight, as applied. This is determined by subtracting the solids weight percent, item 1c, from 100% (i.e., 100 - item 1c).

1h. *VOC Portion of Solvent* - For each coating, indicate the VOC portion of the coating solvent in weight percent, as applied. This is determined by dividing item 1f by item 1g,

i.e., VOC weight percent (1f)) solvent weight percent (1g).

The following example demonstrates the use of the data supplied in item 1 with sample data:

Coating A Composition (as applied)

	Contents by Weight
Column (c)	20% solids
Column (d)	40% water
Column (e)	20% exempt VOC
Column (f)	20% non-exempt VOC
	100% Total

VOC Portion of Coating Solvent in Weight Percent

$$\frac{Column\,(f)\,x\,100}{100 - Column\,(c)} = \frac{20}{(100 - 20)}\,x\,100 = 25\%$$

Since the VOC portion of this coating solvent is equal to 25% , which exceeds 20% by weight, this coating does not meet the exemption requirements of RCSA Section 22a-174-20(f)(9) and therefore items 2 a-e in this section must be completed. See below.

Note: If the VOC portion of the coating solvent, item 1g, exceeds 20% by weight for any coating used, ***complete items 2a-e in this section for each of those coatings****. If additional space is needed to complete this item, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number. You may reproduce this form as necessary.*

Unit Number - Identify the reference or unit number assigned to the type of part to be coated or the type of printing operation which will use the coating(s). Use the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). Please use a consistent reference number for each type of part to be coated or the type of printing operation throughout the application package.

2a. *Coating Name and ID* - Indicate the name and identification number of each coating. Use the same identification system used in this Section, item 1b.

2b. *Applicator ID* - Specify the applicator identification number(s). Use the same numbering system that was used in completing Section II, item 1a.

2c. *Solvent Component* - List the name of each component in the coating solvent (e.g., acetone, methanol, toluene, etc.). Include VOC's and exempt VOC's, but exclude water. This information can be obtained from the Material Safety Data Sheet.

2d. *Component Classification and Volume %* - Determine the classification of each component as R1, R2, R3, or non-reactive (NR). (See following note.) Once this has been determined, indicate, in the appropriate column, the percent by volume of each component in the entire solvent, excluding water.

Note: Solvents are classified in RCSA Section 22a-174-20(I).

Examples of R1 solvents include, but are not limited to: turpentine; isophorone; mesityl oxide; dipentene; acrolein; 1,1-dichloroethylene; divinyl ether; 2-methyl-furan; methyl methacrylate; styrene; and vinyl acetate.

Examples of R2 solvents include, but are not limited to: amyl toluene; cumene; cyclohexylbenzene; dibutyl phthalate; 1,4-diethyl-benzene; dimethyl aniline; ethyl benzoate; glycol monophenyl ether; and xylene.

Examples of R3 solvents include, but are not limited to: diacetone alcohol; di-isobutyl ketone; ethyl benzene; methoxyhexanone; methyl isobutyl ketone; toluene; and trichloroethylene.

Nonreactive solvents: If a solvent is not classified as R1, R2, or R3, it is classified as nonreactive. Examples of nonreactive solvents include but are not limited to: ethanol; propanol; butanol; methanol; amyl alcohol; ethyl acetate;

methyl acetate; isobutyl acetate; n-propyl acetate; acetone; methyl ethyl ketone; cyclohexanone; perchloroethylene; 1,1,1-trichloroethane; carbon tetrachloride; benzene; nitromethane; nitroethane; and tetrahydrofuran.

To determine each component's percent by volume in the entire solvent, divide the volume of the component in a gallon of coating, as applied, by the volume of solvent in a gallon of coating, as applied, excluding solids and water, i.e., component volume percent) solvent volume percent. The sum of all solvent components should be 100% by volume.

2e. *Total* - Add the entries in each column and specify the totals where indicated.

2f. Indicate ("Yes" or "No") whether the material is highly photochemically reactive. The material is highly photochemically reactive if:

- the sum of entries in the R1 column exceeds 5% by volume; or,
- the sum of entries in the R2 column exceeds 8% by volume; or,
- the sum of entries in the R3 column exceeds 20% by volume; or,
- the sum of entries in columns R1, R2, and R3 exceeds 20% by volume.

The following example demonstrates the use of the data supplied in item 2 with sample data:

Example

Components of Solvent *(Contains No Water)*	**Class**	**% by Volume** *(In Coating)*	**% by Volume**** *(In Solvent)*
1-Methoxy 2-Propanol	NR	20	42.55
Toluene	R3	4	**8.51**
Methyl Ethyl Ketone	NR	20	42.55
Vinyl Acetate	R1	1	2.13
Xylene	R2	2	4.26

** For toluene: $\frac{4}{20+4+20+1+2} X\ 100 = 8.51\%$

In this example, R1 components do not exceed 5%, R2 components do not exceed 8%, R3 components do not exceed 20%, nor do the sum of R1, R2, and R3 components exceed 20%. Therefore, this coating is **not** considered highly photochemically reactive.

Section IV: Specific Coating Operations

Note: Complete this section for all coating(s) to be used in a parts coating or printing operation. If additional space is needed to complete this section, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number. You may reproduce this form as necessary. *Attach a Material Safety Data Sheet for each coating, thinner, or catalyst.* These forms are available from the supplier or are shipped with the chemical when it is purchased.

Unit Number - Identify the reference or unit number assigned to the type of part to be coated or the type of printing operation which will use the coating(s). Use the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEP-AIR-APP-200). Please use a consistent reference number for each type of part to be coated or the type of printing operation throughout the application package.

1a. *Coating ID* - Assign an identifying number to each coating (e.g., coating 1, etc.). This number may be an inventory number you are currently using, or a number created for these application materials. Please use a consistent identifying number for each coating throughout the application package.

1b. *Applicator ID (s)*- Specify the applicator identification number(s). Use the same numbering system that was used in completing Section II, item 1a.

1c. *Coating Name* - Indicate the name of each coating.

1d. *Type of Coating* - Specify the type of coating. Refer to page 7 of the form (DEP-AIR-APP-205) for the proper code to be entered in this column.

Information for items 1e-j can be obtained from the coating's Material Safety Data Sheet or supplier. These same items also refer to the coating as purchased or received, i.e., before any thinning.

1e. *Coating Density* - Indicate the coating's density in pounds per gallon, as purchased, i.e. before thinning.

1f. *Total Volatiles Content* - Specify the total volatiles content in the coating in weight percent. Volatiles, in this case, includes VOC's, exempt VOC's, and water.

1g. *Water Content* - Specify the water content of the coating in weight percent.

1h. *Exempt Solvent Content* - Specify the exempt solvent content of the coating in weight percent. Exempt solvents are listed in RCSA Section 22a-174-1.

1i. *VOC Content* - Specify the VOC content of the coating in weight percent.

1j. *Solids Content* - Specify the solids content of the coating in volume or weight percent.

Note: If no diluents are added to the coating, omit items 1k-p.

1k. *Compound Name or ID* - If any diluents, thinners, viscosity reducers, or catalysts are used, complete the compound's name and identification number. If more than one diluent is used, attach a separate sheet as necessary, clearly identifying the applicant name, form name and item number, and applicator identification number.

1l. *Diluent Density* - Indicate the diluent's density in pounds per gallon, as purchased.

1m. *VOC Content* - Specify the VOC content of the diluent in weight percent, as purchased.

1n. *Water Content* - Specify the water content of the diluent in weight percent, as purchased.

1o. *Exempt Solvent Content* - Specify the exempt solvent content of the diluent coating in weight percent, as purchased. Exempt solvents are listed in RCSA Section 22a-174-1.

1p. *Diluent/Coating Ratio* - Specify the volumetric mix ratio of diluent to coating, i.e., gallons diluent to gallons of coating.

1q. *VOC Content* - Indicate the VOC content of the coating, *as applied*, in pounds VOC per gallon of coating. To calculate this, you will need to use the information, supplied in this section, on the VOC content of your coating and diluent, and the mix ratio between the two. The formula used to perform this calculation is as follows:

[(pounds of VOC per gallon of coating) times (the mix ratio)]

plus

[(pounds of VOC per gallon of thinner) times (the mix ratio)]

equals

the pounds of VOC per gallon of coating mix, as applied.

The following example demonstrates the use of this formula with sample data:

EXAMPLE

- A coating has a VOC content, as purchased, of 7.5 pounds of VOC per gallon.
- The thinner has a VOC content, as purchased, of 10 pounds of VOC per gallon.
- The mix ratio to be used is 1 gallon of coating to 2 gallons of thinner.

The data is plugged into the formula in the following fashion:

$$\left[\frac{7.5\ pounds\ VOC}{gal\ coating}\ X\ \frac{1\ gal\ coating}{3\ gal\ mix}\right]$$

PLUS

$$\left[\frac{10\ pounds\ VOC}{gal\ thinner}\ X\ \frac{2\ gal\ thinner}{3\ gal\ mix}\right]$$

yielding a result of 9.16 pounds of VOC per gallon of mix as applied, or

$$\left\{\frac{7.5}{1}\ X\ \frac{1}{3}\right\} + \left\{\frac{10}{1}\ X\ \frac{2}{3}\right\} = 9.16$$